What is claimed is:

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- 1. Method for preparing biological samples for analysis, comprising the following steps:
- a) placing the biological sample on a two-dimensional support;
 - b) applying protein-precipitating or denaturing first solution L1 to the biological sample at a first temperature T1 for a predetermined first time period Z1;
- c) leaving the protein-precipitating or denaturing solution L1 or applying more protein-precipitating or denaturing solution L1, or applying a protein-precipitating or denaturing solution L2 to the biological sample at a second temperature T2 for a predetermined second time period Z2, with T2 being lower than T1 and Z2 being longer, equal to or shorter than Z1; and
 - d) drying the sample.
- 2. Method according to claim 1, wherein a drying of the sample takes place between the process steps a) and b) as process step a1) and/or between the process steps b) and c) as process step b1).
 - 3. Method according to claim 2, wherein said drying of the sample takes place by means of air or vacuum drying.
 - 4. Method according to claim 1, wherein after said process steps b) or b1) as process step b2), the sample is frozen.
- 5. Method according to claim 1, wherein said biological sample is a cell or tissue sample or a mixture of proteins or nucleic acids or a mixture of macromolecules comprising proteins and/or carbohydrates and/or fats and/or nucleic acids.

- 6. Method according to claim 1, wherein said solutions L1 and/or L2 are organic solvents and/or solutions with critical pH values and/or solutions with critical ion concentrations and/or salt solutions and/or solutions containing metal ions.
- Method according to claim 6, wherein said organic solvents are methanol and/or ethanol and/or butanol and/or acetone.
- 8. Method according to claim 6, wherein said salt solutions contain dissolved salts of picric acid and/or gallotannic acid and/or tungstic acid and/or molybdenum acid and/or trichloroacedic acid and/or perchloric acid and/or sulphosalicylic acid.
 - 9. Method according to claim 1, wherein T1 covers a temperature range of -10°C to 60°C.
- Method according to claim 1, wherein after said process step d), said biological samples are subjected to a protein and/or nucleic acid determination method and/or a protein-chemical separation method and/or a method for the in-situ analysis of cell structures.
- Device for performing a method for preparing biological samples for analysis according to claim 1, wherein said device exhibits at least one chamber to receive the biological sample or samples applied to a support and at least one temperature controller for controlling and adjusting the temperature inside said chamber.
 - 12. Device according to claim 11, wherein said chamber can be closed with a lid.
- Device according to claim 11, wherein said device exhibits at least one vacuum pump to generate a vacuum inside said chamber.
 - 14. Device according to claim 12, wherein said device exhibits at least one vacuum pump to generate a vacuum inside said chamber.
 - 15. Device according to claim 11, wherein there is arranged inside said chamber at least one separation wall.

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- 16. Device according to claim 15, wherein said separation wall can be removed or shifted manually or automatically.
- Device according to claim 11, wherein several chambers (1, 2, 3 ..., n) are arranged in series and behind each other.
 - 18. Device according to claim 11, wherein several of said chambers are arranged above one another.
 - 19. Device according to claim 11, wherein several of said supports are arranged on one or several sample slides.
- Device according to claim 11, wherein the individual process steps are executed and controlled manually, semi-automatically or automatically by said device.

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